

## DETAILED ACTION

### *Claim Objections*

1. Claim 6 is objected to because of the following informalities: The limitation “either linear low density polyethylene (HDPE) and either linear low density polyethylene (LLDPE) or very low density polyethylene (VDPE)” is not clear. Appropriate correction is required.

### *Claim Rejections - 35 USC § 101 / 35 USC § 112*

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 provides for the use of a gas-filled bubble sheet, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

5. Claim 11 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex*

*parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1-6, 8 and 10, the phrase "preferably" renders the claim indefinite because it is unclear whether or not the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Regarding claim 1, the phrase "such as" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Regarding claim 1, the phrase "for example" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Regarding claim 1, the limitation "the film web" in line 11 lack sufficient antecedent basis as more than one film web is recited prior to said limitation (e.g. line 2 "comprising at least two film webs).

Regarding claim 6, the phrase "in particular," renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Regarding claim 6, where applicant acts as his or her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning, the written description must clearly redefine the claim term and set forth the uncommon definition so as to put one reasonably skilled in the art on notice that the applicant intended to so redefine that claim term. *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999). The term "metallization" in claim 6 is used by the claim to be a separate layer in a laminate, while the accepted meaning of metallization to those having ordinary skill in the art is "a process for implanting metals on a substrate." It is unclear whether the claim is meant to recite that the "PET or PP" layer, or possibly some other substrate, is implanted with metals, in which case metallization would not be a separate layer, or if the metallization layer is meant to be a separate layer of metal. The term is indefinite because the specification does not clearly redefine the term.

Regarding claims 3-5 and 8, the phrase "about," renders the claim indefinite because it is unclear whether the limiting ranges in the claim are inclusively bounded or exclusively bounded. For example, in instant claim 3, the thickness limitations of "at least 4  $\mu\text{m}$ " and "about 9-20  $\mu\text{m}$ " are recited. It is unclear if a thickness of 3  $\mu\text{m}$ , which is about 9  $\mu\text{m}$ , yet less than 4  $\mu\text{m}$ , would be part of the claimed limitation. Claims 4-5 and 8 contain similarly problematic "about" limitations. See MPEP § 2173.05(a).

The term "about" in claims 3-5 and 8 is a relative term which renders the claim indefinite. The term "about" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim 8 recites "the second film web" (line 3), "the metallized PET layer or PP layer" (line 3-4) and "the 2-7 layers of coextruded film" (line 4-5). There is insufficient antecedent basis for these limitations in the claim. Appropriate correction is required.

Claim 9 recites "the metallized PET layer or PP layer" (line 2). There is insufficient antecedent basis for this limitation in the claim. The layers in claim 6 refer to a PET and PP layer and a separate layer of "metallization" (claim 6, lines 4-5), while claim 9 refers to metallized PET or PP being one layer. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1, 3-5, 7, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Planeta et. al (US 6,159,616).

Regarding claim 1, Planeta et. al discloses a gas-filled bubble sheet for application in civil engineering comprising:

(See C1 L10-15. The disclosed bag is a type of gas-filled bubble sheet)

- at least two film webs which are connected to one another

(See Fig 2. The sheet has 9 layers connected to one another.)

- and contain at least one barrier material,

(See C5, example 1, L30-35. PVDC is a barrier material.)

- and of which at least one comprises a plurality of preferably biaxially oriented layers,

(See C5, example 1, L39.)

- characterized in that a first, thermoformable film web has at least 5 layers as a bottom web,

(See C5, example 1, L20-25. The film has seven layers.)

- the barrier material, preferably ethylene/vinyl alcohol copolymer (EVOH), polyvinylidene chloride (PVDC) or polyethylene terephthalate (PET),

(See C5, example 1, L30-35. PVDC is a barrier material.)

- being embedded between two layers of adhesion-improving and/or load- distributing material, such as, for example, polyamide (PA) and/or an adhesion promoter,

(See C5, example 1, L25-31. The layers of ethylene vinyl acetate, which are on either sides of the PVDC barrier layers, are used as adhesion-improving layers, See C2 L 55-61. Also, Planeta et. al discloses that it was known, at the time of their invention to one having ordinary skill in the art, for polyamide layers and adhesive layers to be used on either sides of barrier material layers, (C1 L43-49). )

- and the outer layers of the film web consisting of a weldable material, preferably polypropylene (PP) or polyethylene (PE).

(See C5, example 1, L25-27 and L35-38. The first and seventh layers, the outer layers, are polyethylene and are weldable.)

Regarding claim 3, Planeta et. al discloses a bubble sheet according claim 1, characterized in that the layer of barrier material has a thickness of at least 4  $\mu\text{m}$ , preferably about 9 – 20 $\mu\text{m}$ .

(See C5, example 1, L30-36. The barrier layer, which consists of layers #3, #4 and #5 in Fig. 3, has a thickness of 18  $\mu\text{m}$ , which is within the claimed range, (i.e. PVDC layers #3 and #5 are 5 $\mu\text{m}$  thick (C5, example 1, L36) and adhesive layer #4 is 8 $\mu\text{m}$  thick (C5, example 1, L31).)

Regarding claim 4, Planeta et. al discloses bubble sheet according to claim 1, characterized in that the adhesion-improving and/or load-distributing layers have a thickness of, in each case, at least 2  $\mu\text{m}$ , preferably about 10  $\mu\text{m}$ .

(See C5, example 1, L31. The adhesive layer #4 is 8  $\mu\text{m}$  thick which is within the claimed range and is about 10 $\mu\text{m}$ .)

Regarding claim 5, Planeta et. al discloses a bubble sheet according to claim 1, characterized in that the outer layers of weldable material, together with the respective adhesion promoter layer, have a thickness of, in each case, at least 10  $\mu\text{m}$ , preferably about 15 – 30  $\mu\text{m}$ .

(See C5, example 1, L25-27. The first outer layer of polyethylene has a thickness of 20 $\mu$ m (C5, example 1, L27) and the adhesive layer have a thickness of 8  $\mu$ m (C5, example 1, L31). Together the two layers have a thickness of 28  $\mu$ m, which is within the claimed range. The second outer layer of polyethylene is disclosed at being between 10 and 50  $\mu$ m thick (C2, L40-45), which, taking the lower endpoint (10  $\mu$ m), would give it a thickness, when combined with the adhesive layer (8 $\mu$ m), of 18  $\mu$ m, which is within the claimed range.)

Regarding claim 7, Planeta et. al discloses a bubble sheet according claim 1, characterized in that at least one film web contains a further barrier material.

(See Fig. 2. There are three PVDC barrier layers disclosed.)

10. Claim 11 is rejected under 35 U.S.C. 102(b) as being anticipated by Griffith et. al (US 5,270,092).

Regarding claim 11, Griffith et. al discloses a gas-filled bubble sheet comprising a plurality of film webs, of which at least one film web comprises a plurality of layers and at least one of these layers contains a barrier material,

(See C7, L50-61 and Fig. 3. The core layer (#17) and the multilayer film comprising 3 layers (#9, #11 and #13) are a plurality of film webs with the multilayer film having a plurality of layers, one of which (#11) being a barrier layer.)

for footfall sound insulation and/or as a heat-insulating layer in civil engineering.

(See C4 L15-16. Building insulation can function as both heat and sound insulation in civil engineering.)

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Planeta et. al (US 6,159,616) as applied to claims 1, 3-5, 7, and 11 above, and in view of Muggli et. al (WO 97 19811 A). See English language equivalent (US 6,337,113).

Regarding claim 2, Planeta et. al discloses all the limitations as set forth above.

Planeta et. al does not disclose a metal coating.

Muggli et. al does disclose a metal coating in a bubble sheet (See Examples in C5, L 55-65). The metal coating is used in Muggli et. al, and is known in general to those of skill in the art at the time of the instant invention, to provide, among other things, improved gas barrier properties to films (C1, L18-20).



It would have been obvious to one having ordinary skill in the art at the time of the invention to have modified the bubble sheet as taught by Planeta et. al by adding a metal coating as taught by Muggli et. al for the purposes of improving the gas barrier properties of said bubble sheet.

13. Claims 6, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Planeta et. al (US 6,159,616) as applied to claims 1, 3-5, 7, and 11 above, and in view of Akao (US 4,978,572), referred to hereinafter as Akao'572, and further in view of Akao (US 4,780,357), referred to hereinafter as Akao'357.

Regarding claim 6, Planeta et. al discloses all the limitations as set forth above.

Planeta et. al does not disclose a second film web with layers of PET or PP, metallization, polyurethane adhesive and a coextruded film.

Akao'572 does disclose a film web with layers in the following sequence:

- Polyethylene terephthalate (PET) or polypropylene (PP),
- metallization,

(See C8, L6-10. Polypropylene is disclosed as a thermoplastic substrate to be metallized. Fig. 3 shows the metallization layer (#3) adjacent to said thermoplastic substrate (#2).

- polyurethane adhesive,

(See C8, L69 - C9, L2. Polyurethane is an adhesive of the type used in the adhesive layer (#6), which is adjacent to the metallization layer (#3). (Fig. 3) )

- an at least 2-layer, preferably 5 - 7-layer, coextruded film,

(See C10, L25-30. Coextruded multilayer film (#7a) consists of two coextruded ethylene copolymer resin film layers (#5a and #5a) (Fig 3). LLDPE, and blends of ethylene copolymer resin including HDPE, are disclosed as ethylene copolymer resins (#5a) (C4, L40-42 and C5, L20-26). )

Akao'572 discloses that the film web with a metallized layer adhered to a coextruded film of ethylene copolymer resin film layers has excellent bursting strength, impact puncture strength, heat seal tolerance and gas barrier properties (C3, L1-10).

It would have been obvious to one having ordinary skill in the art at the time of the invention to have modified the bubble sheet taught by Planeta et. al by using as a top second film web the film web as taught by Akao'572, for the purposes of imparting excellent bursting strength, impact puncture strength, heat seal tolerance and gas barrier properties to the bubble sheet.

Additionally, the modified Planeta et. al does not disclose the coextruded film at least two layers in particular containing one layer each of HDPE or LLDPE or VDPE. Akao'357 does disclose a coextruded film comprising HDPE and LLDPE layers.

(See C2, L65-69. The coextruded double layer film (A) consisting of M-HDPE (#2a) and LLDPE (#1a) (Fig 3). The M-HDPE has a density of 0.954 g/ml (C10, example 1, L7), which is with the instant disclosed density boundaries defining HDPE.)

Furthermore Akao'357 applies the coextruded double layer film consisting of HDPE and LLDPE adjacent to an adhesive layer (#3), which is adjacent to a metal layer (#7a), which is adjacent to an adhesive layer (#3), which is adjacent to a layer of PP (#2) (Fig. 3). The laminate is functionally similar to the laminate of Akao'572, even though the PP layer (#2) is not directly metallized. Akao'357 teaches that the use of the HDPE/LLDPE coextruded layer imparts superior slitability, physical strength and heat sealing properties to the laminate (C2, L30-37).

It would have been obvious to one having ordinary skill in the art at the time of the invention to have modified the bubble sheet taught by modified Planeta et. al, by using HDPE and LLDPE in the coextruded double layer film as taught by Akao'357, for the purposes of imparting excellent slitability, physical strength and heat sealing properties to the bubble sheet.

Regarding claim 8, modified Planeta et. al discloses all of the claim limitations as set forth above.

Additionally, Planeta et. al discloses the bubble sheet, characterized in that the first film web has a total thickness of 28 - 120  $\mu\text{m}$ , preferably about 40 - 80  $\mu\text{m}$ .

(See C5, Example 1, L39-40. 80  $\mu\text{m}$  is within the claimed range.)

Further, Akao'572 discloses a second film web with a metallized PET layer or PP layer having a thickness of 10 - 20  $\mu\text{m}$ , preferably about 12  $\mu\text{m}$ ,

(See C8, L25-30. The metalized thermoplastic resin film layer has a thickness of 7 to 50  $\mu\text{m}$ . Polypropylene is disclosed as a thermoplastic resin of the type used for metallization (C8, L5-10). Also, See C10, L65 - C11 L13. The total thickness of the metallized layer is 15.04  $\mu\text{m}$ , which is within the claimed range.)

Additionally, Akao'357 does disclose a 2 layer coextruded film having a total thickness of 50  $\mu\text{m}$  to 200  $\mu\text{m}$ , which encompasses the claimed limitation (C8, L45-50), but does not explicitly disclose the specific total thickness of the coextruded film as being between 28 and 120  $\mu\text{m}$ . Since the instant specification is silent to unexpected results, the total thickness of the coextruded film is not considered to confer patentability to the claims. As the low temperature heat seal ability and reduced cost of manufacture are variables that can be modified, among others, by adjusting the total thickness of the coextruded film, with said low temperature heat seal ability and reduced cost of manufacturing increasing as the total thickness of the coextruded film decreases, the total thickness of the coextruded film would have been considered a result effective variables by one having ordinary skill in the art at the time the invention was made.

As such, without showing unexpected results, the claimed total thickness of the coextruded film cannot be considered critical. Accordingly, one of ordinary skill in the art at the time the invention was made would have optimized, by routine experimentation, the total thickness of the coextruded film to obtain the desired low temperature heat seal ability and reduced cost of manufacture (In re Boesch, 617 F.2d. 272, 205 USPQ 215 (CCPA 1980)), since it has been held that where the general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (In re Aller, 105 USPQ 223).)

Regarding claim 9, modified Planeta et. al discloses all of the claim limitations as set forth above.

Modified Planeta et. al does not disclose an optical density of the metallized PP layer in the second film web. However, in light of the substantially identical polymer composition and metallization in the second film web of Akao'572 with the instant metallized PP layer in the second film web, it will, inherently, possess the claimed properties. See MPEP 2112.

14. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Planeta et. al (US 6,159,616) as applied to claims 1, 3-5, 7 and 11 above, and in view of Griffith et. al (US 5,270,092).

Regarding claim 10, Planeta et. al discloses all of the claim limitation as set forth above.

Planeta et. al does not disclose the presence of an inert gas in the bubble sheet. Griffith et. al does disclose the use of argon gas in a bubble sheet for its improved insulated properties owing to its lower conductivity than air (C2, L 60-65).

It would have been obvious to one with ordinary skill in the art at the time of the invention to have modified the bubble sheet taught by Planeta et. al by using Argon gas in the bubble sheet as taught by Griffith et. al, for the purposes of imparting improved insulative properties to the bubble sheet.

### ***Conclusion***

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL B. NELSON whose telephone number is (571) 270-3877. The examiner can normally be reached on Monday through Thursday 6AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Basia Ridley can be reached on (571) 272-1453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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